

FIG. 1

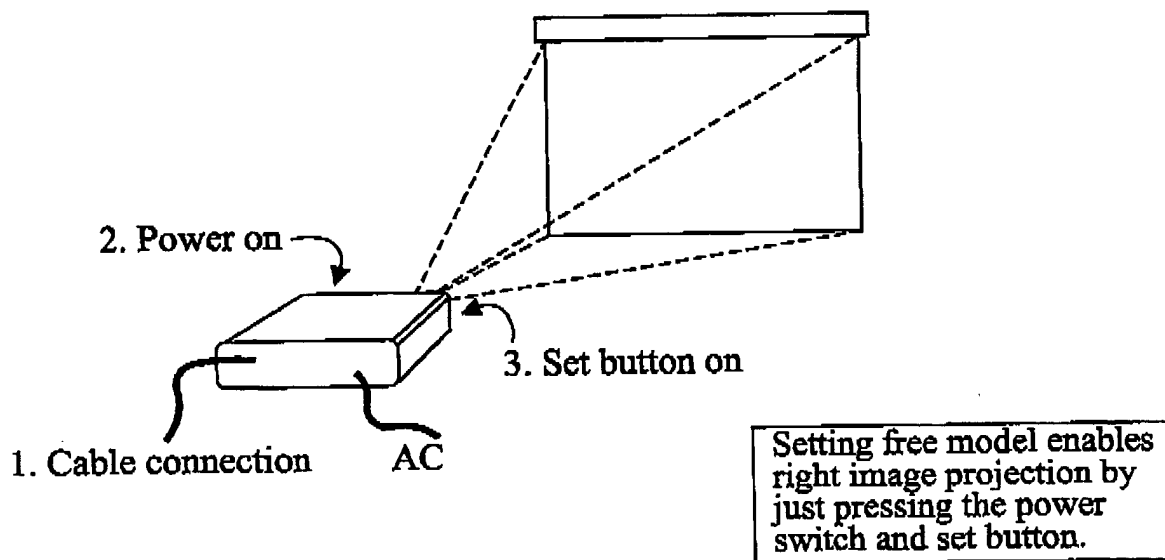


FIG. 2

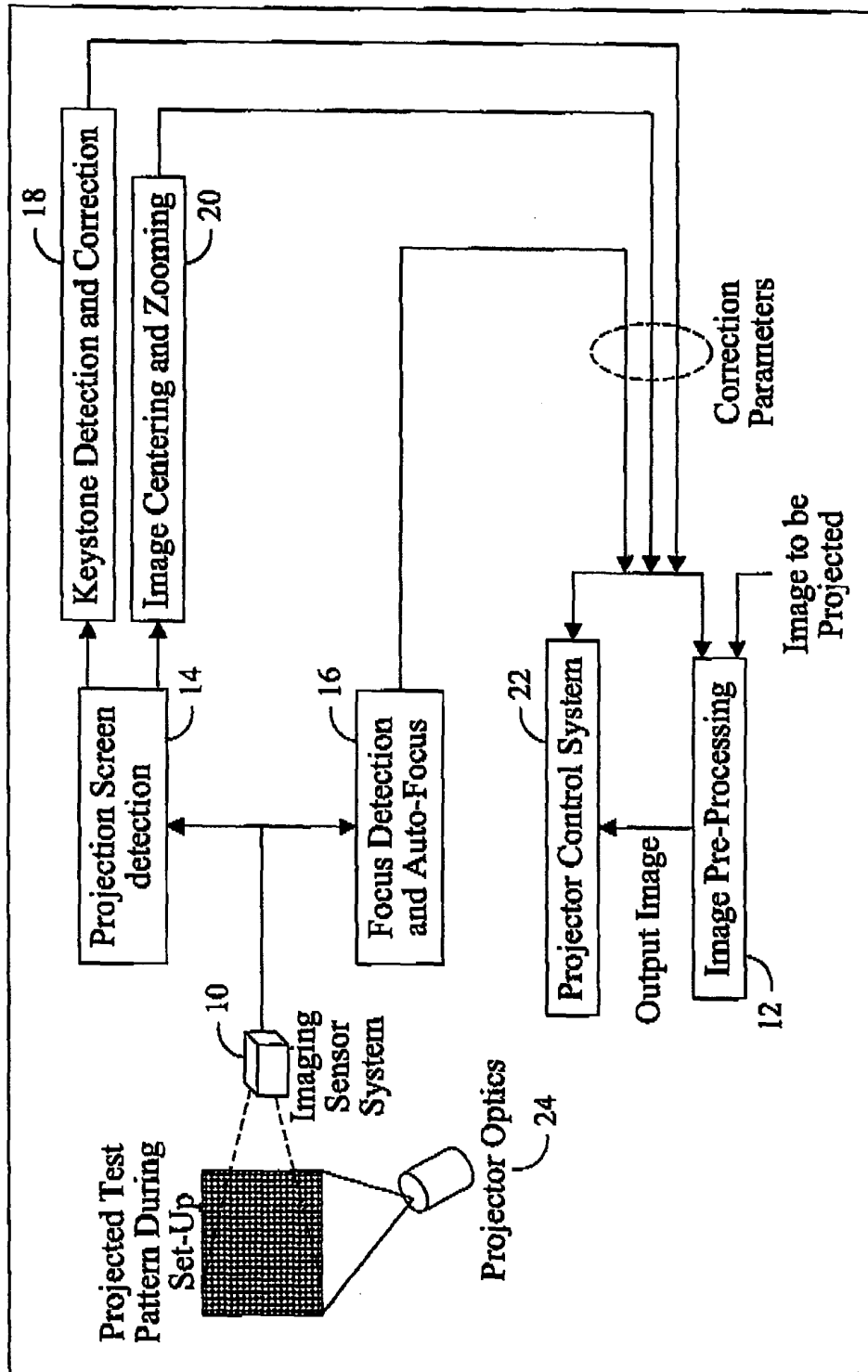
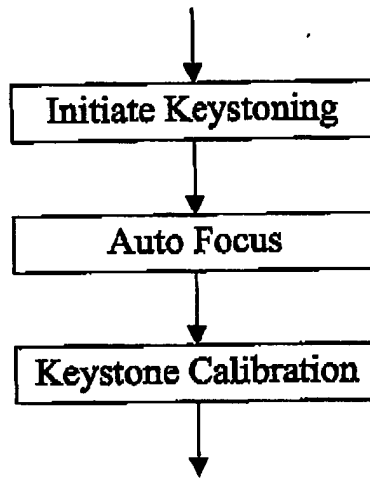
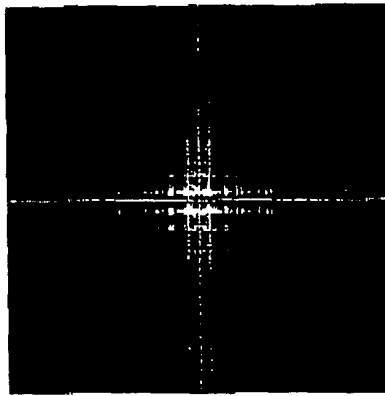


FIG. 3



**FIG. 4**

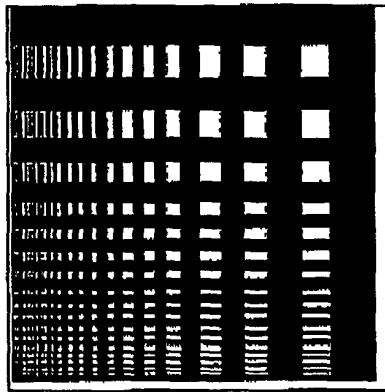
FIG. 8



Spectrum



FIG. 5



Focused  
Image

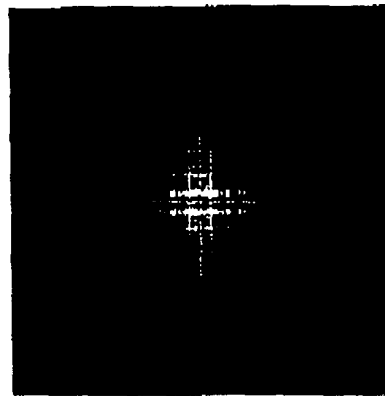
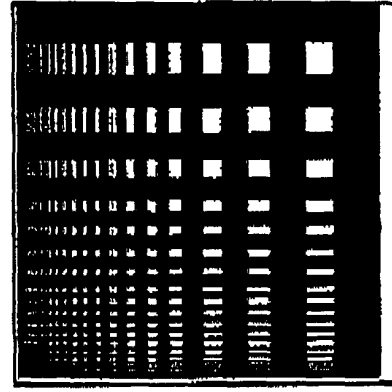


FIG. 7

Spectrum



FIG. 6



Out-of-focus  
Image

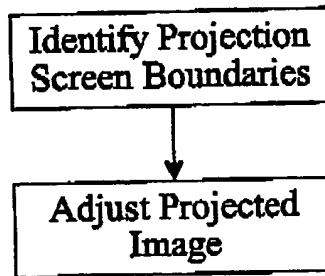


FIG. 9

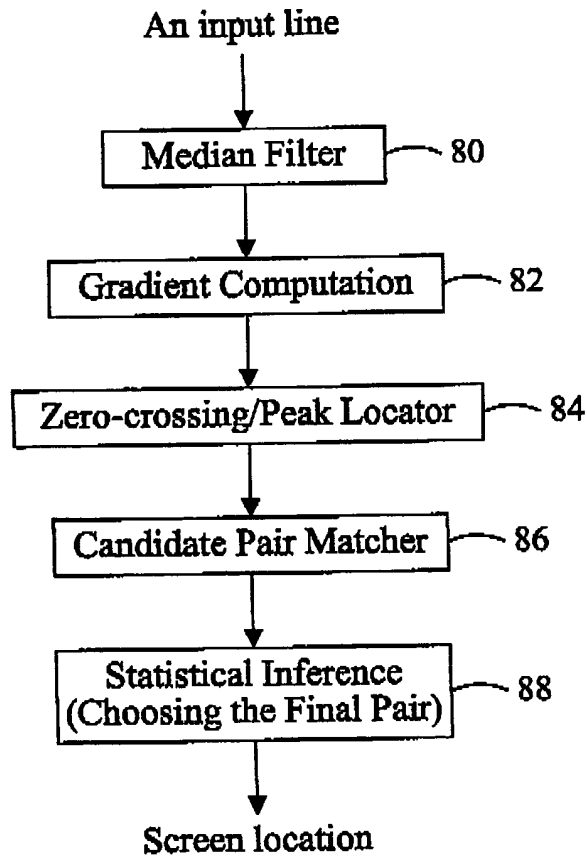
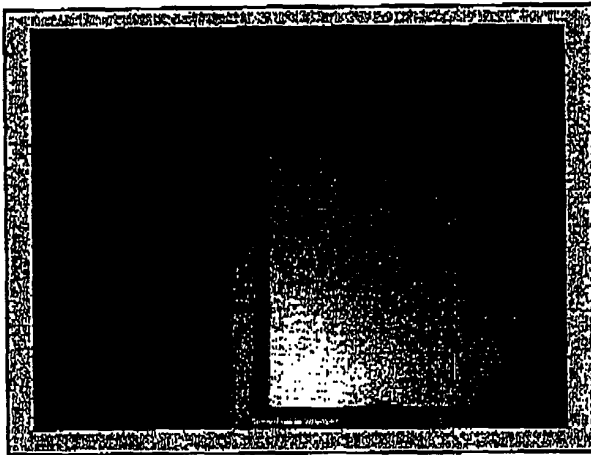


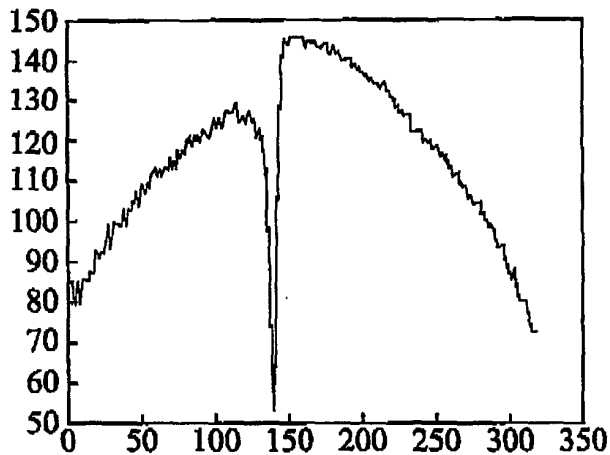
FIG. 10

(a)



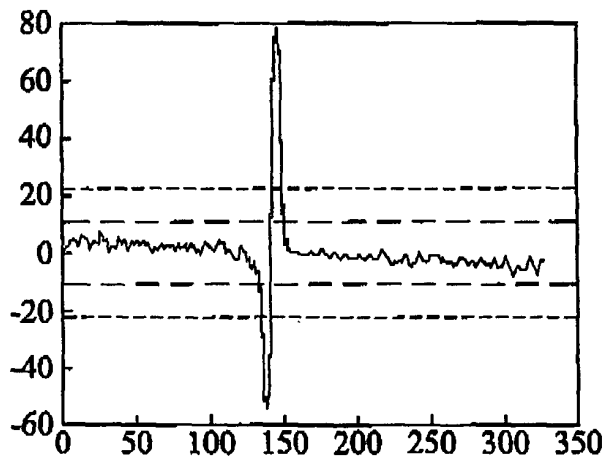
An image of the screen from the projector's perspective. The line is assumed to be the one row that the 1-D sensor can sense.

(b)



The luminance values of the row in (a), illustrating that working in the luminance domain there may be no region that is uniform (and thus is potential screen area).

(c)



The gradient of (b).

FIG. 11

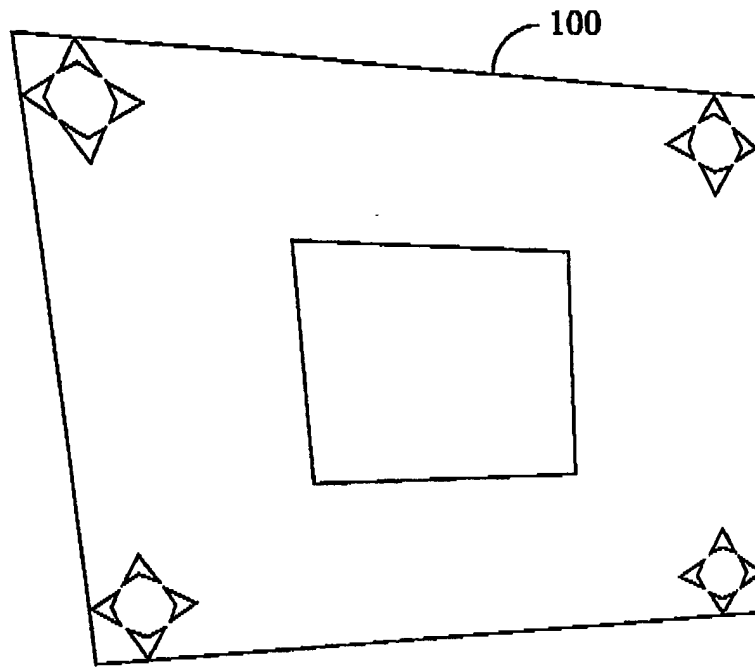
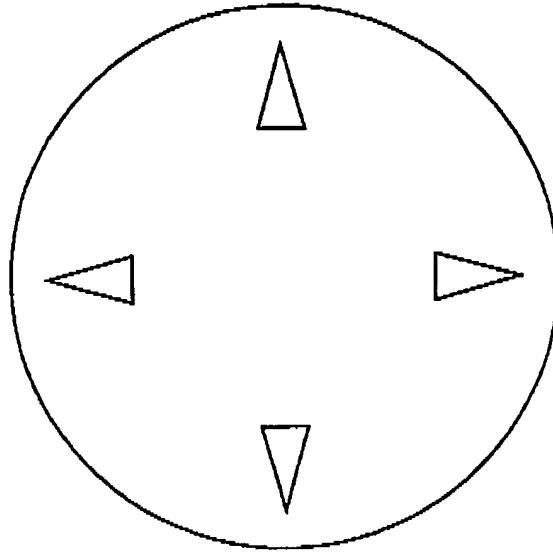
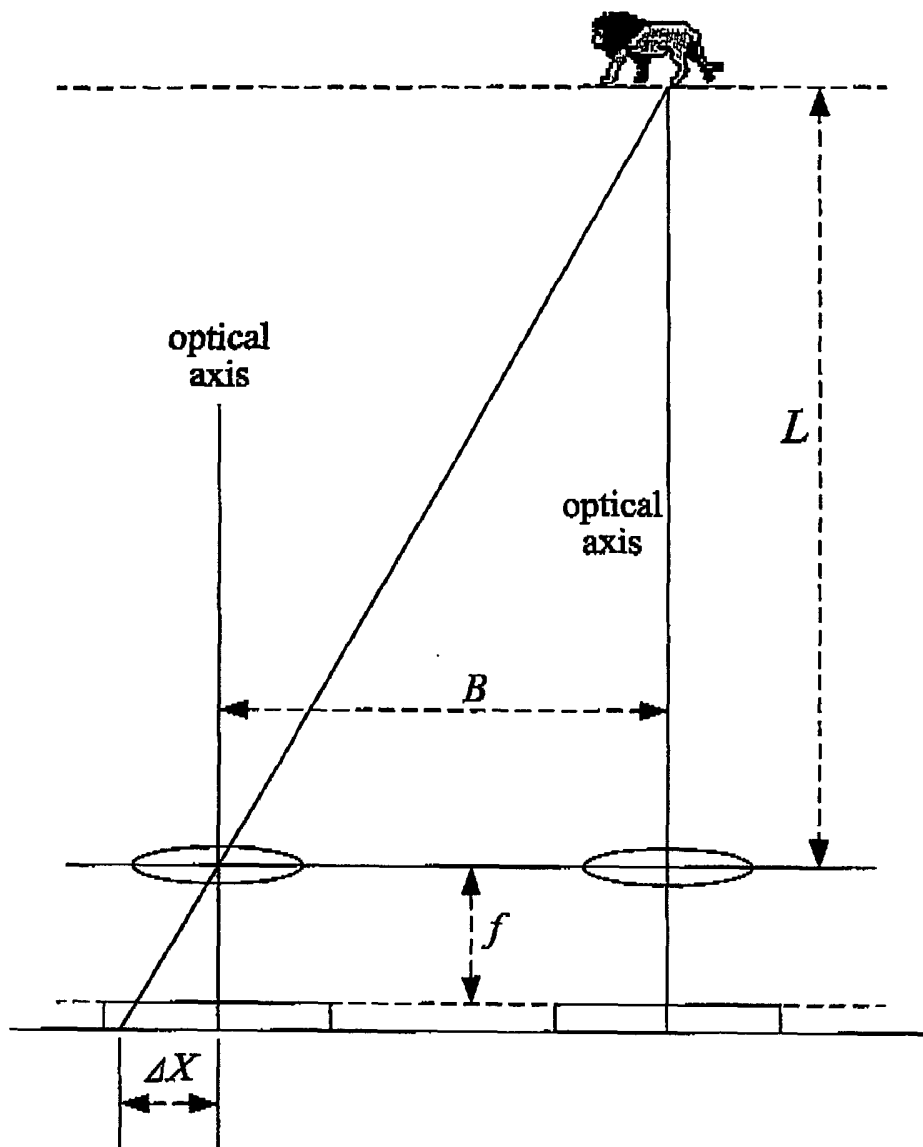


FIG. 12



**FIG. 13**





Based on the similarity of the triangles, the distance  $L$  is computed as a function of the sensor parameters ( $B$  and  $f$ ) and the disparity  $\Delta X$  (difference between the two images of the same physical point):

$$L = \frac{Bf}{\Delta X}$$

FIG. 14

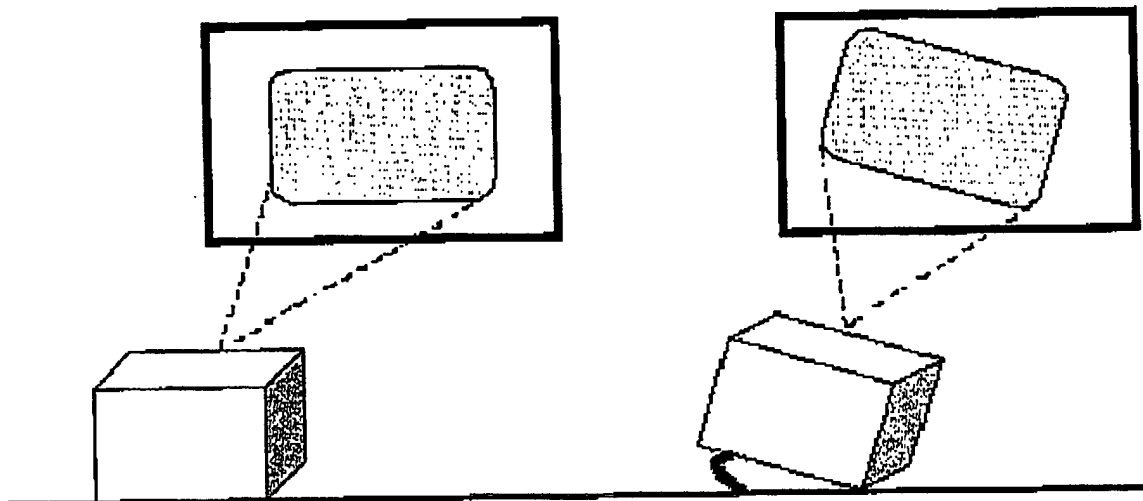


FIG. 16

FIG. 15